

What is claimed is:

1. A method for forming a micro pattern, comprising the steps of:
 - (a) providing a semiconductor substrate in which a lower film is formed;
 - (b) coating a first photoresist film on the lower film;
 - 5 (c) depositing a second photoresist film having a higher glass transition temperature than the first photoresist film on the first photoresist film;
 - (d) implementing an exposure process and a wet development process using a photo mask to pattern the second photoresist film and the first photoresist film, thereby forming a first photoresist film pattern;
 - 10 (e) implementing RFP for the first photoresist film pattern to cause flow of the first photoresist film pattern, thus forming a second photoresist film pattern having a lower critical dimension than the first photoresist film pattern; and
 - (f) implementing an etch process using the second photoresist film
 - 15 pattern as an etch mask for the lower film to pattern the lower film.
2. The method as claimed in claim 1, wherein the lower film is formed using TiN, SiON, Si₃N₄, organic anti-reflection coating of amorphous carbon series or an inorganic anti-reflection coating.
- 20 3. The method as claimed in claim 1, wherein the difference in a glass transition temperature between the first photoresist film and the second photoresist film is 1 ~ 10 °C.

4. The method as claimed in claim 1, wherein the first photoresist film and the second photoresist film have the same physical properties other than the glass transition temperature.

5 5. The method as claimed in claim 1, wherein the first photoresist film is coated in thickness of 0.1 μm .

6. The method as claimed in claim 1, wherein the second photoresist film is coated in thickness of 0.5 μm .

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7. The method as claimed in claim 1, wherein the exposure process employs I-line, KrF, ArF, EUV, E-beam or X-ray as a photoresist.

8. The method as claimed in claim 1, wherein during the RFP, a
15 heating time is 50 ~ 200 seconds.

9. The method as claimed in claim 1, wherein the RFP is implemented at a temperature of 132°C for 90 seconds.

20 10. The method as claimed in claim 1, wherein the critical dimension of the first photoresist film pattern is 0.20 μm .

11. The method as claimed in claim 1, wherein the critical dimension of the second photoresist film pattern is 0.13 μm .